NOVA SCOTIA

Response to the Joint Panel Review Environmental Assessment

Sydney Tar Ponds and Coke Ovens Sites Remediation Project

NOVA SCOTIA
Environment and Labour
Transportation and Public Works
Health Promotion and Protection

January 28, 2007

2008-04005/

Government of Nova Scotia
Response to the Joint Panel Review Environmental Assessment

The Sydney Tar Ponds and Coke Ovens Remediation Project has undergone a joint federal-provincial environmental assessment. An independent Joint Review Panel submitted their report to the provincial and federal Ministers of Environment in July 2006. There were 55 recommendations directed at both provincial and federal government departments and agencies.

Nova Scotia Environment and Labour, Transportation and Public Works and the Office of Health Promotion and Protection are pleased to provide this provincial response to the specific recommendations of the Joint Review Panel.

Government of Nova Scotia
Response to the Joint Panel Review Environmental Assessment

Contents

Nova Scotia Transportation and Public Works Page 1
Overview of Responsibilities
Response to Panel Recommendations

Nova Scotia Health Promotion and Protection Page 3
Response to Panel Report and Recommendations

Nova Scotia Environment and Labour Page 4
Overview of Regulatory Process
Response to Panel Recommendations

Appendices Page 7
A - Panel Recommendations - NS Response Table

B - Minister's Letter of Decision on the Environmental Assessment

C - Environmental Assessment Approval

D - Definitions

E -Terms of Reference for the Remediation Monitoring Oversight Board

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Transportation and Public Works

The Department of Transportation and Public Works (NSTPW) is the Province's lead for the $400-million federal-provincial Cost Share Agreement for the clean-up of the Sydney Tar Ponds and Coke Oven sites. Together with Public Works and Government Services Canada, NSTPW co-manages the administration of the cost-shared funding, in accordance with a Memorandum of Agreement between the federal and provincial governments signed on May 12, 2004.

To effectively protect the federal and provincial government interests in the project, NSTPW has contracted the services of an independent engineering consultant for the life of the project. The role of the independent engineer is to make sure all design and remediation activities undertaken by the STPA are conducted in accordance with the conditions of the MOA. This includes technical, financial and environmental and project management requirements.

On September 2, 2004, the Sydney Tar Ponds Agency was established as a single purpose, special operating agency to implement the project on behalf of the provincial government. The Agency is responsible for the day-to-day operations related to the oversight of various technical aspects of the project, including design, contracting and overall project management. More information on the Agency is available on their website at www.tarpondscleanup.ca.

Panel Recommendations

NSTPW provides the following response to six specific recommendations of the Joint Review Panel:

Recommendation 33 - Economic Benefits Strategy

The provincial government firmly believes that Nova Scotia, and Cape Breton in particular, should and will greatly benefit from this major environmental remediation project. To ensure this happens, the province asked the Sydney Tar Ponds Agency to prepare a comprehensive local economic benefits strategy. This strategy, developed in close consultation with the private sector, will ensure fair access to Tar Ponds related contracts by local companies. In addition to providing substantial employment opportunities, this project will have a significant impact on the area's economy by making Sydney, and Cape Breton Island, a more attractive place to live, work and invest. The department will monitor the impact of the STPA's local economic benefit strategy on an ongoing basis.

Furthermore, the federal/provincial partners have agreed to enter discussions with First Nations on meaningful economic participation in the Tar Ponds Project, including the development of an Aboriginal Procurement Strategy. Of particular note is the Nova Scotia Cabinet approval to set aside the Cooling Ponds construction contract for a competitive procurement process open solely to eligible aboriginal businesses. Also, consideration is being given to funding a First Nations Economic Benefits Office, capable of measuring outcomes, such as any increase in business capacity arising from the project.

Recommendation 34 - Women's Employment Strategy
and Recommendation 35 - African Nova Scotia Employment Strategy

The Government of Nova Scotia stands by the principles of equity and diversity that are the basic foundations of provincial government employment policy. The STPA, in administering the day-to-day project activities including hiring, is required to do so in a manner consistent with the intent of this policy when making those decisions. The department will encourage the Tar Ponds Agency to be innovative in the development of specific employment strategies.

Recommendation 39 - Future Use Plan

Nova Scotia Transportation and Public Works agrees with the recommendation, and has already begun collaborating with Public Works and Government Services Canada, the Cape Breton Regional Municipality, STPA and other stakeholders in the development of future use plans for the sites. As part of our shared commitment, NSTPW, and PWGSC have committed funding towards a $200,000 Port to Port study, which will look at future uses for the Tar Ponds and Coke Ovens sites and beyond.

Recommendation 43 - Maintenance of Community Open Space

NSTPW agrees in principle with the recommendation. Within the terms of the MOA, NSTPW will work with CBRM to ensure that the Panel's recommendation is considered as part of the final design of the Project. To that end, NSTPW will support future plans for community open space that are in accordance with the MOA.

Recommendation 49 - Tying Funding to Technology Testing

NSTPW is committed to ensuring that proven technology is used in cleaning up the Tar Ponds and Coke Ovens sites. It is also committed to ensuring that appropriate treatability studies and pilot scale testing of technology are carried out during the design phase of the project. In co-operation with our federal funding partners, a system of stringent performance-based financial controls has been adopted. Moreover, project implementation activities are being tracked against the work breakdown structure and are subject to verification by the project's Independent Engineer.

Recommendation 51 - Provincial and Federal Ownership of Remediated Lands

NSTPW agrees in principle with the recommendation. As part of the agreement with the federal government, the province will take ownership of the property upon completion of remediation activities. As owner of the property, the province will ensure that the integrity of the capped areas of the site will be protected. Any future site usage would be on the basis of having adequate covenants in place to protect the cap.

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Health Promotion and Protection

The Department of Health Promotion and Protection, through the Office of the Chief Medical Officer of Health, will, in concert with Public Health Services of the Cape Breton District Health Authority, Health Canada and other public health professionals, provide a team approach to the evaluation, monitoring and response to environmental public health issues associated with the approval, construction and operational phases of the project. The department will also work with NS Environment and Labour to respond to community based enquiries, complaints, and concerns regarding air quality monitoring and human health risks during the construction and operational stages.

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Environment and Labour

On July 13, 2005 the Minister of Environment and Labour (Nova Scotia) and the Minister of Environment (Canada) signed an agreement for a joint environmental assessment review process for the remediation of the Sydney Tar Ponds and Coke Ovens sites. The agreement was intended to ensure that the environmental assessment requirements of both governments could be met through a single coordinated review based on the federal panel review process. The panel's mandate was to prepare a report to both levels of government.

A three member panel was jointly appointed by both governments to conduct a formal public review. The panel's review, including 17 days of public hearings held in Sydney, was completed on July 12, 2006 with submission of the Panel Report. Following submission of the Panel Report, the Minister of Environment and Labour conducted a review of panel findings and recommendations. The Minister has now accepted all of the panel recommendations and has granted Environmental Assessment Approval for the project subject to terms and conditions identified in the attached approval document.

With Environmental Assessment Approval now in place, the Sydney Tar Ponds Agency (STPA) will be required meet the terms and conditions set out in the approval. This includes a requirement to apply for and receive additional approvals from Nova Scotia Environment and Labour (NSEL) pursuant to Part V of the *Environment Act*.

The STPA will be required to submit detailed design and engineering plans as part of the Part V Approval application. These plans will be reviewed by NSEL and other provincial and federal agencies in a coordinated manner to ensure environmental effects of the project are prevented or mitigated. Approvals issued pursuant to Part V of the *Environment Act* will also include additional terms and conditions on the project. Compliance with all approval terms and conditions will be mandatory, and NSEL will be responsible for monitoring compliance.

Panel Recommendations

In addition to Joint Review Panel recommendations that have been addressed through terms and conditions of the Environmental Assessment Approval (Appendix C), the Minister of Environment and Labour provides the following response to panel recommendations that fall outside of the Environmental Assessment Approval:

Recommendation 3 - Analysis of Risks, Costs and Benefits for Two Remediation Alternatives

As recommended by the panel, a risks, costs and benefits analysis of the two remediation approaches was undertaken. The results of this analysis identified the alternative approach of full solidification and stabilization as the better option in terms of both risk and benefit. Under the terms of the Environmental Assessment Approval, the Minister of Environment and Labour has approved the use of full scale solidification and stabilization (S&S), and prohibited incineration as a component of the project. The Minister has also prohibited the use of landfarming at the Coke Ovens site.

To address panel concerns with the proven use of S&S for materials similar to those found at the Tar Ponds and Coke Ovens Sites, the Minister has required that STPA conduct a series of tests to demonstrate that S&S can be conducted effectively and safely on the sites.

Recommendation 28 - Increasing Regulatory Capacity

NSEL recognizes the challenges associated with regulatory oversight of a project of this magnitude. The department will establish new dedicated positions for work exclusively on the Tar Ponds and Coke Ovens sites remediation project.

Recommendation 47 - Federal-Provincial Regulatory Plan

NSEL has a history of working cooperatively with federal regulatory agencies in the review of projects. We will collaborate with our federal counterparts to formalize a plan for regulatory oversight of the remediation project. This plan will include a joint approach for the review of project engineering and design details, approval applications, and compliance monitoring and enforcement protocols.

Recommendation 50 - Tar Ponds and Coke Ovens Remediation, Maintenance and Monitoring Act

NSEL will amend the Activities Designation Regulations pursuant to the *Environment Act* for authority to establish long term approval over site activity, and require monitoring and maintenance as long as the project requires. The need for establishing a new

Remediation, Maintenance, and Monitoring Act will be assessed as remediation nears completion.

Recommendation 53 - Remediation Monitoring Oversight Board

The Minister of Environment and Labour will establish an independent Remediation Monitoring Oversight Board whose mandate will be to monitor and report on NSEL's regulatory oversight of the project. The board will be established and operated in accordance with the attached terms of reference (Appendix E).

APPENDICES

Appendix A

Joint Review Panel Recommendations - Nova Scotia Response Summary

The following table provides a brief summary of how Nova Scotia has responded to each of the 55 recommendations of the joint review panel.

	Recommendation of the Joint Review Panel	Responsible Parties	Nova Scotia Response
1	Recommendation to Minister of NSEL to approve the project subject to conditions	NSEL	The Minister of Environment and Labour has approved the project subject to conditions.
2	STPA Mitigation Measures	NSEL and Federal Gov.	Environmental Assessment Approval Condition 1.3
3	Toxic Substances Management Policy	Federal Gov & NSEL	Environmental Assessment Approval Condition 3.1
4	Combined Emissions and Expected Ambient Air Concentrations	NSEL and[1] PWGSC	Environmental Assessment Approval Condition 7.1
5	Solidification/Stabilization Process and Air Emissions	NSEL and PWGSC	Environmental Assessment Approval Conditions 4.2, 4.4, 4.6
6	Remediation and Air Monitoring and Follow-up Program	NSEL and PWGSC	Environmental Assessment Approval Condition 5.1.5
7	Ground and Surface Water Protection Design Requirements	NSEL and PWGSC	Environmental Assessment Approval Condition 7.2
8	Groundwater Monitoring Program	NSEL and PWGSC	Environmental Assessment Approval Condition 5.1.6
9	Cap Design	NSEL and PWGSC	Environmental Assessment Approval Condition 6.1.1
10	Cap Monitoring Program	NSEL and PWGSC	Environmental Assessment Approval Condition 5.1.7
11	Solidification/Stabilization Criteria	NSEL and PWGSC	Environmental Assessment Approval Conditions 4.1 and 4.4
12	Treatability Study	NSEL and PWGSC	Environmental Assessment Approval Condition 4.1
13	Pilot Scale Study	NSEL and PWGSC	Environmental Assessment Approval Condition 4.2

[1] NSEL - Nova Scotia Environment and Labour
PWGSC - Public Works Government Services Canada
NSTPW - Nova Scotia Transportation and Public Works
DFO - Fisheries and Oceans Canada
STPA - Sydney Tar Ponds Agency
CBRM - Cape Breton Regional Municipality

	Recommendation of the Joint Review Panel	Responsible Parties	Nova Scotia Response
14	Wastewater Treatment	NSEL	Environmental Assessment Approval Conditions 5.1.2 and 6.1.5
15	Fish Migration	NSEL and PWGSC	Environmental Assessment Approval Condition 8.3
16	Landfarming	STPA	Environmental Assessment Approval Condition 3.3
17	Water Quality Monitoring	NSEL and PWGSC	Environmental Assessment Approval Conditions 5.1.6 and 6.1.5
18	Ecological Risk Assessment	PWGSC	Federal requirement
19	Long-Term Monitoring of Sydney Harbour	PWGSC with NRCan, DFO, EC, and STPA	Federal requirement
20	Air Dispersion Modelling & Risk Assessment	NSEL and PWGSC	incineration has been prohibited n/a incineration related
21	Pollution Control and Monitoring Technology	EC and NSEL	n/a incineration related
22	Enclosure of Incinerator Facilities	NSEL and PWGSC	n/a incineration related
23	Effects on Wells at the Victoria Junction Site	NSEL and PWGSC	n/a incineration related
24	Monitoring of Surface Water Resources	NSEL and PWGSC	n/a incineration related
25	Phalen Site Water Supply	NSEL and PWGSC	n/a incineration related
26	Incinerator Bidders' Track Record	STPA	n/a incineration related
27	Bond Requirements	STPA	n/a incineration related
28	Increasing Regulatory Capacity	NSEL	Recommendation was incineration related, however NSEL is addressing resource demands to regulate all project aspects.
29	Thermal Relief Valve	NSEL and PWGSC	n/a incineration related
30	Monitoring Upset Conditions	NSEL and PWGSC	n/a incineration related
31	Monitoring Environmental Effects of Incineration	NSEL and PWGSC	n/a incineration related
32	Community Involvement	NSEL and PWGSC	n/a incineration related
33	Economic Benefits Strategy	NSEL and PWGSC	NSTPW has required STPA to develop a local economic benefits strategy.

	Recommendation of the Joint Review Panel	Responsible Parties	Nova Scotia Response
34	Women's Employment Strategy	STPA	The Government of Nova Scotia stands by the principles of equity and diversity that are the basic foundations of provincial government employment policy. The STPA, in administering the day-to-day project activities including hiring, is required to do so in a manner consistent with the intent of this policy when making those decisions.
35	African Nova Scotian Employment	STPA and Cape Breton Black Employment Partnership Committee	The Government of Nova Scotia stands by the principles of equity and diversity that are the basic foundations of provincial government employment policy. The STPA, in administering the day-to-day project activities including hiring, is required to do so in a manner consistent with the intent of this policy when making those decisions.
36	Transportation Management Plan	NSEL and PWGSC	Environmental Assessment Approval Condition 5.1.3
37	Ensuring Rail Safety	NSEL and PWGSC	n/a incineration related
38	Use of Rail to Transport Construction Materials	STPA	n/a incineration related
39	Future Use Plan	STPA and CBRM	Directed at Proponent, but affected by condition 8.1
40	Minimizing Restrictions on Future Uses through Site Design Enhancement	STPA and CBRM	Directed at Proponent, but affected by condition 8.1
41	Maximizing Aquatic Habitat Restoration Part of Future Use Planning	STPA, NSEL, NSDNR, DFO and EC	Environmental Assessment Approval Condition 8.2
42	Tree Planting	STPA and CBRM	Directed at Proponent, but affected by condition 8.1
43	Maintenance of Community Open Space	NSTPW	Within the terms of the MOA, NSTPW will work with CBRM to ensure that the Panel's recommendation is considered as part of the final design of the Project.
44	Perimeter Enhancement Strategy	NSEL and PWGSC	Environmental Assessment Approval Condition 8.4
45	Property Value Protection Program	NSEL and PWGSC	Environmental Assessment Approval Condition 8.5
46	Contingency Planning for Heritage Resources	STPA	Environmental Assessment Approval Conditions 9.1 and 9.2
47	Federal-Provincial Regulatory Plan for Tar Ponds and Coke Ovens	NSEL and Federal Gov.	NSEL is developing a plan in cooperation with federal partners

	Recommendation of the Joint Review Panel	Responsible Parties	Nova Scotia Response
48	Federal Expert Advice	PWGSC	Federal Requirement
49	Tying Funding to Technology	PWGSC and NSTPW	NSTPW in cooperation with federal funding partners, has adopted a system of stringent performance-based financial controls for the project.
50	Tar Ponds/Coke Ovens Remediation Maintenance and Monitoring Act	NSEL	Intent will be met through required amendments to the *Activities Designation Regulations* which will allow for a long term approval including site maintenance, monitoring and reporting requirements. The need for a Remediation, Maintenance and Monitoring Act will be assessed as remediation nears completion.
51	Provincial and Federal Ownership of Remediated Lands	NS and Canada	The province will take ownership of the property upon completion of remediation activities. As owner of the property, the province will ensure that the intregrity of the capped areas of the site will be protected
52	Approval of Monitoring Program	NSEL	Environmental Assessment Approval Conditions 6.1.3 and 6.1.4
53	Tar Ponds and Coke Ovens Remediation Monitoring Oversight Board (RMOB)	PWGSC and NSEL	Minister of Environment and Labour will establish a Monitoring Oversight Board to monitor NSEL's regulatory management of the project
54	Reporting Monitoring Results	PWGSC and NSEL	Environmental Assessment Approval Condition 5.1.4
55	Community Liaison Committee (CLC)	PWGSC and NSEL	Environmental Assessment Approval Condition 10.1 and 10.2

Appendix B

Nova Scotia

Department of
Environment & Labour

Office of the Minister

PO Box 697
Halifax, Nova Scotia
B3J 2T8

Our File Number:
10700-40
40100-31-13

January 23, 2007

Frank Potter, Chief Executive Officer
Sydney Tar Ponds Agency
PO 1028, Station A
Sydney, NS B1P 6J7

Dear Mr. Potter:

Re: Environmental Assessment
Sydney Tar Ponds and Coke Ovens Remediation Project

The environmental assessment of the Sydney Tar Ponds and Coke Ovens Remediation Project, has been completed.

This is to advise that I have approved the above project in accordance with Section 26 of the *Environmental Assessment Regulations*, pursuant to Part IV of the *Environment Act*. I am satisfied following a review of the information provided by the Sydney Tar Ponds Agency, and through the government and public consultation as part of the environmental assessment panel review process, that any adverse effects or significant environmental effects of the undertaking can be adequately mitigated through compliance with the attached terms and conditions.

This letter in conjunction with the attached terms and conditions constitutes my approval. This approval is subject to any other approvals required by statute or regulation, including but not limited to, approval under Part V of the Nova Scotia *Environment Act* (Approvals and Certificates section).

If you have any questions regarding the approval of this project, please contact the Acting Manager, Environmental Assessment Branch, Ms. Julie Towers at towersjk@gov.ns.ca.

Sincerely yours,

Original Signed By

Mark Parent
Minister

Encl.

Appendix C

Environmental Assessment Approval

Approval Date : January 23, 2007

Sydney Tar Ponds and Coke Ovens Sites Remediation Project

Sydney Tar Ponds Agency, Proponent

Sydney, Nova Scotia

The Sydney Tar Ponds and Coke Ovens Sites Remediation Project (the "Undertaking"), proposed by the Sydney Tar Ponds Agency (the "Proponent"), in Sydney, Nova Scotia is approved pursuant to Section 13(1)(b). This Approval is subject to the following conditions and obtaining all other necessary approvals, permits or authorizations required by municipal, provincial and federal acts, regulations, by-laws, guidelines, policies or standards before commencing work on the Undertaking. It is the responsibility of the Proponent to ensure that all such approvals, permits or authorizations are obtained before commencing work on the Undertaking.

This Environmental Assessment Approval is based upon the review of the conceptual design, environmental baseline information, impact predictions, and mitigation presented in the Environmental Impact Statement, as well as the findings and recommendations of the Joint Review Panel Environmental Assessment.

Terms and Conditions for Environmental Assessment Approval

1.0 General Approval

1.1 This Environmental Assessment Approval is limited to the scope of the Undertaking as described in the *Remediation of Sydney Tar Ponds and Coke Ovens Sites Environmental Impact Statement,* dated December 2005, and subject to the following conditions. Any proposal by the Proponent for expansion, modification or relocation of any aspect of the project from that proposed in the Environmental Impact Statement must be submitted to the Environmental Assessment Branch for review and may require an environmental assessment.

1.2 The Proponent must, within two years of the date of issuance of this approval, commence work on the Undertaking unless granted a written extension by the Minister.

1.3 The Proponent must implement all mitigation and commitments in the Environmental Impact Statement, unless approved otherwise by Nova Scotia Environment & Labour (NSEL).

2.0 Project Review and Approval Protocols

2.1 The Proponent shall not commence remediation work until approval is granted by NSEL pursuant to Part V of the *Environment Act*.

2.2 All documentation submitted by the Proponent to NSEL for review and approval shall also be provided to any federal or provincial government agency, or third party identified by NSEL at the time of submission, including the Monitoring Oversight Board.

2.3 The Proponent is responsible for the cost of any specialized professional or consulting services deemed necessary by NSEL, to assist in the technical review of documentation submitted for approval, or for compliance monitoring.

3.0 Remediation Approach

3.1 The Proponent shall not conduct hazardous waste incineration as a component of the Undertaking.

3.2 The Proponent shall remediate contaminated materials in the North and South Tar Ponds, Coke Ovens Brook, and Tar Cell using solidification and stabilization technology processes (S&S) to be reviewed and approved by NSEL, pursuant to Part V of the *Environment Act*.

3.3 The Proponent shall not conduct landfarming as a component of the Undertaking.

4.0 Solidification/Stabilization Treatability and Pilot Scale Study

4.1 The Proponent shall prepare a Treatability Study Report for the use of S&S on the South Tar Pond and the Tar Cell. The Treatability Study Report shall be submitted to NSEL for review and approval and shall include, but not be limited to the following:

- an established set of data objectives and evaluation criteria for the study;
- a description of the material preparation, handling and curing requirements used during the study;
- an assessment of heterogeneity of tar ponds sediments and tar cell materials for characteristics relevant to S&S;

- an assessment of the effectiveness of mix designs tested and their ability to meet project specific criteria under varying physical and environmental conditions;
- an assessment of air emissions that would be generated at full scale application;
- an assessment of the physical and chemical characteristics of the treated material including physical uniformity, unconfined compressive strength (UCS), leachability and permeability;
- and, the technical rationale for the minimum required UCS.

4.2 Following review and approval of the Treatability Study Report results by NSEL, the Proponent shall submit a detailed S&S Pilot Scale Test Plan to NSEL for review and approval. The Pilot Scale Test Plan shall include, but not be limited to the following:

- a detailed description of method, treatment formulas, equipment and materials to be used;
- scaled drawings showing the precise location and dimensions of the treatment area (including depths) to be treated in the pilot scale test area;
- a detailed description of the types, volumes and distribution of contaminants to be treated in the pilot scale test area;
- environmental effects monitoring plans, including a detailed air monitoring plan;
- and, S&S performance evaluation criteria and testing methodologies.

4.3 The Proponent shall not conduct pilot scale testing until the treatability study results and the Pilot Scale Test Plan have been reviewed and approved by NSEL.

4.4 Upon completion of pilot scale S&S testing, the Proponent shall submit the test results in a report to NSEL. The report shall include but not be limited to the following information:

- an evaluation of the method (s) used, treatment formulas, equipment and materials;
- a comparative analysis between results of the treatability study mix performance and pilot scale study mix performance, and rationale for any discrepancies or variations in results;
- an assessment of any required scaling factors for mix design or its application based on observed field conditions or performance results;
- an assessment and evaluation of the performance consistency of the treated material using full scale equipment;

- and, environmental effects monitoring results.

4.5 The Proponent shall not conduct S&S outside of the approved pilot scale testing areas until the results of the pilot scale test have been reviewed and approved by NSEL.

4.6 Environmental effects monitoring results from the pilot scale testing shall be used to finalize detailed mitigation measures and monitoring protocols for full scale application of S&S.

5.0 Environmental Management Plan

5.1 Prior to making application for Part V Approval(s) under the *Environment Act* to conduct remediation work, the proponent shall develop a project Environmental Management Plan (EMP) to be submitted to NSEL for review and approval. The EMP shall include, but not be limited to the following components:

5.1.1 General requirements that include:

- a detailed conceptual site model for all components of the Undertaking showing the linkages between project activities;
- a general description of each project component, including the layout, process diagrams, and the general operation and maintenance or long term monitoring requirements of each activity required to be completed for the Undertaking;
- an overall timeline and work schedule for the construction and remedial activities associated with the Undertaking;
- and, a detailed implementation and construction plan, to include a remediation milestone schedule and sequence of construction plan for each activity.

5.1.2 a project Environmental Protection Plan which shall include, but not be limited to an overall:

- mitigative measures plan;
- mitigation monitoring plan that will describe how planned mitigation measures will be evaluated during all phases of the project;
- land use and institutional control plan;
- quality assurance / quality control measures plan for all construction, remediation and site management activities at the site(s), with particular reference to QA/QC measures during the solidification/stabilization process ;
- project environmental effects monitoring plan;
- project sedimentation control plan;

- remedial management plan;
- wastewater management plan;
- and, project contingency plan.

5.1.3 a Transportation Management Plan which shall include, but not be limited to :

- the identification of primary and secondary transportation routes;
- transportation schedules;
- dust management measures;
- safety management measures;
- methods to ensure contractor compliance;
- monitoring measures;
- and, communication policies.

5.1.4 a Public Reporting Protocol which shall include, but not be limited to:

- the monitoring parameters and results to be reported to the public and other stakeholders, including the rationale for determining
  - how results get reported
  - which results get reported
  - when results get reported;
- and, details of the communication methods for reporting to the public and other stakeholders.

5.1.5 a project Air Monitoring Program to be updated and modified within the EMP as required by NSEL throughout the life of the project. The Proponent shall demonstrate that an evaluation of the existing monitoring network and historical air quality issues, causes and responses were considered in developing the program. The program shall include, but not be limited to the following:

- a framework for developing monitoring criteria, compliance monitoring and monitoring frequency;
- a response protocol for air quality exceedances;
- reporting mechanisms and procedures;
- protocols for air quality data management and interpretation;
- mechanisms for providing public access to data;
- quality assurance / quality control measures;
- and, methods and schedule for monitoring and reporting on the effectiveness of mitigation measures.

5.1.6 a Groundwater Monitoring Program to monitor shallow, intermediate, and deeper bedrock, groundwater zones. The program shall include, but not be limited to the following:

- a framework for developing monitoring criteria and monitoring frequency;
- monitoring parameters (e.g. analytical parameters, field parameters, water levels, etc.);
- field protocols (i.e. water sampling protocols, water level measurement protocols);
- reporting mechanisms and procedures;
- sampling locations;
- response protocols for detected impacts;
- measures to detect underground flows from the Coke Ovens site;
- and, methods and schedules for monitoring and reporting on the effectiveness of mitigation measures.

5.1.7 a Cap Monitoring Program which includes:

- monitoring criteria and monitoring frequency;
- monitoring methods and locations;
- reporting procedures;
- and, response protocols for cap breach or failure.

5.2 Any proposed modifications to the EMP and associated component plans throughout the duration of the project must be submitted to NSEL for review and approval.

6.0 Detailed Environmental Protection Plans:

6.1 As part of the application for Part V Approval(s) under the Environment Act to conduct remediation work, the proponent shall submit detailed Environmental Protection Plans (EPP's) that shall include, but not be limited to the following:

6.1.1 a Remedial Management Plan for each remedial activity required as part of the Undertaking, accounting for cumulative effects that may occur from activities that may take place at the same time, or otherwise overlap. The plan will include, but shall not be limited to:

- detailed design plans for each activity as they are developed and finalized;

- detailed design/engineering criteria, construction details and specifications, and maintenance details, with particular reference to the Tar Ponds and Coke Ovens surface caps;
- detailed descriptions of the work procedures for each activity, including activity stages, and process diagrams;
- and, scaled figures and drawings that will show the areas to be treated or remediated at any one time, and the associated site layout, phasing of works, staging areas, and construction equipment and techniques to be used.

6.1.2 a Mitigation Measures Plan for each remedial activity required as part of the Undertaking, accounting for cumulative effects that may occur from activities that may take place at the same time, or otherwise overlap. The plan will include, but shall not be limited to:

- a detailed and specific description of all required mitigation measures, including time schedules for their implementation. This will include all relevant items identified in the EIS and any additional relevant mitigation measures required as a result of the pilot field test project in the Tar Ponds and the subsequent overall final project design.

6.1.3 a detailed Mitigation Monitoring Plan for each remedial activity required as part of the Undertaking, accounting for cumulative effects that may occur from activities that may take place at the same time, or otherwise overlap.

6.1.4 a detailed Environmental Effects Monitoring Plan for each remedial activity required as part of the Undertaking, accounting for cumulative effects that may occur from activities that may take place at the same time, or otherwise overlap. The plan will include, but shall not be limited to:

- a description of existing baseline conditions that exist for all compounds of concern and media (air land and water);
- a verification monitoring plan for all project related models that have, or will be completed as part of the detailed design;
- a detailed air monitoring plan;
- a detailed surface water monitoring plan;
- a detailed groundwater monitoring plan;
- a detailed remedial verification and long term monitoring plan, including physical, chemical and numerical modelling techniques to be employed for the sites and technologies to be employed;

- a detailed quality assurance / quality control measures document for all construction, remediation and site management activities at the site(s), with particular reference to QA/QC measures during the solidification/stabilization process;
- and, a detailed sampling, analysis and quality assurance plan.

6.1.5 a detailed Wastewater Management Plan for each remedial activity required as part of the Undertaking. The plan will include but not be limited to:

- design details of all surface water and groundwater collection & treatment systems and facilities;
- details of wastewater treatment processes;
- sampling parameters and frequency;
- locations of monitoring stations (including receiving waters) and proposed discharge limits;
- sampling and reporting protocols;
- proposed methods for interpreting results;
- and, long term operational details of the water treatment and collection system after remediation work is complete.

6.1.5 detailed Contingency Plans for each remediation activity required as part of the Undertaking, accounting for cumulative effects that may occur from activities that may take place at the same time, or otherwise overlap.

6.1.6 detailed Quality Assurance / Quality Control Measures Plans for all construction, remediation and site management activities at the site(s)

6.1.7 detailed Sedimentation Control Plans for each remediation activity required as part of the Undertaking, accounting for cumulative effects that may occur from activities that may take place at the same time, or otherwise overlap.

6.2 Any proposed modifications to the detailed EPPs and associated component plans throughout the duration of the project must be submitted to NSEL for review and approval.

7.0 Air and Water Data

7.1 Prior to commencing remediation work, the Proponent shall calculate total anticipated ambient air concentrations from all project components in combination with existing concentrations in the local air shed. The

calculations must be provided to NSEL and other agencies as directed by NSEL. Based on the calculations, the Proponent shall re-evaluate the risk assessments and develop mitigative measures to address any identified variances.

7.2 Prior to commencing remediation work, the Proponent shall conduct hydrogeological modelling to predict pre-remediation and post-remediation groundwater flow patterns on the Tar Ponds and Coke Ovens Sites, including the influence of seawater infiltration from Sydney Harbour. The results of the modelling shall be submitted to NSEL for review and shall be used in the final design of groundwater and surface water control measures and monitoring programs.

8.0 Land-Use Controls, Site Enhancements

8.1 The Proponent shall submit for review and approval of NSEL, a detailed Institutional Control Plan to be implemented for activities on the Tar Ponds and Coke Ovens sites to ensure the effectiveness of remediation and site management measures following construction on a permanent basis. The plan shall include but not be limited to:

- an end land use plan, based on the capacity of the remediated sites to support various land uses;
- the mapped coordinates of remedial and site management infrastructure, monitoring points, and associated site features;
- the identification of any proposed limitations and restrictions for surface disturbances, excavation, vegetation or ornamental planting, water management, roads, building construction, and other activities;
- site specific revegetation/tree planting plans;
- description of the proposed method for ensuring the institutional controls remain in force in perpetuity.

8.2 Prior to commencing remediation work, the Proponent shall submit for review and approval of NSEL, an aquatic habitat restoration plan to increase the area of reclaimed estuarine habitat. The plan shall be developed in consultation with Fisheries and Oceans Canada, Nova Scotia Department of Natural Resources, and Environment Canada, and shall be incorporated into the project design.

8.3 The Proponent shall consult with NSEL and Fisheries and Oceans Canada on constructed watercourse design, and the development of a long-term aquatic biodiversity monitoring study of the Coke Ovens Brook and Wash Brook watersheds.

8.4 Prior to commencing remediation work, the Proponent shall submit for review and approval of NSEL, a perimeter enhancement strategy to mitigate interactions between the project works and the surrounding community. The strategy shall be developed in consultation with the Cape Breton Regional Municipality (CBRM) and the Citizens Liaison Committee (CLC).

8.5 Prior to commencing remediation work, the Proponent shall submit for review and approval of NSEL, a Property Value Protection Plan which includes mitigation measures to minimize negative impact on the value of surrounding properties.

9.0 Archaeological and Heritage Resources

9.1 Prior to commencing remediation work, the Proponent shall submit for review and approval of NSEL and the Nova Scotia Museum, an archaeology and heritage resources contingency plan.

9.2 The Proponent shall halt work and contact the Curator of Archaeology at the Nova Scotia Museum, and the Executive Director of the Union of Nova Scotia Indians immediately upon discovery of an archaeological site or artifact.

10.0 Reporting and Community Involvement

10.1 The Proponent shall maintain a project Community Liaison Committee (CLC) for the duration of the project, unless otherwise approved by NSEL.

10.2 Prior to application for Part V Approval under the *Environment Act* to conduct remediation work, the Proponent shall submit for review and approval of NSEL, an updated terms of reference for the project CLC, which includes the following details:

- Committee mandate
- Meeting frequencies
- A member appointment and replacement process, that ensures broad representation
- Methods for communicating CLC activities and mandate to the public
- CLC reporting framework
- Process for evaluating CLC effectiveness

Original Signed By

Mark Parent
Minister of Environment and Labour

Appendix D

Definitions

Contingency Plan

A plan respecting the prevention of, preparedness for, response to and recovery from an unauthorized release of a substance.

Environmental Effects Monitoring Plan

A monitoring plan which includes specific monitoring methods and locations to detect any changes in environmental conditions resulting from project activities.

Environmental Management Plan

An overall plan or framework of activities which provide for the sound environmental management of the project so that adverse environmental impacts are minimized and mitigated; beneficial environmental effects are maximized; and sustainable development is ensured.

Environmental Protection Plan

A component of the Environmental Management Plan that describes the detailed plans and schedules of mitigation measures and processes to be implemented to prevent adverse environmental effects on the environment during project operations.

Institutional Controls

Nonengineering measures designed to increase the effectiveness of the chosen remedy at a site. Institutional controls provide information about the environmental condition of the site by specifying requirements or restrictions for the redevelopment or reuse of the site. Institutional controls are usually, but not always, legal controls, such as easements, restrictive covenants, and zoning ordinances.

Mitigation Measures

Measures taken to eliminate, reduce, or control adverse environmental effects of the undertaking.

Remedial Management Plan

A detailed description of the actions and construction activities required to clean up, contain or otherwise manage the contaminants on site, including the design details and specific equipment and methods to be used. (For the purposes of this project, the term Remedial Management plan is synonymous with "Remedial Action Plan.")

Appendix E

Tar Ponds and Coke Ovens
Remediation Monitoring Oversight Board

Context:
The Joint Environmental Assessment Review Panel for the Sydney Tar Ponds and Coke Ovens Sites Remediation Project provided the following recommendation:

The Panel recommends that PWGSC and NSEL, before construction begins, appoint an independent three-member monitoring oversight board with a formal mandate tied in to the Federal-Provincial Regulatory Plan. The monitoring oversight board would act in a formal technical review capacity to ensure the general public that the project is proceeding within its approved guidelines. The board would meet as often as required and no less than twice a year, and would report to PWGSC and NSEL. All reports from the board would be made public. At the completion of the construction phase the role of the board would be re-evaluated and would thereafter be tied into the mandate of the Tar Ponds and Coke Ovens Remediation Maintenance and Monitoring Act.

Terms of Reference

1. Purpose
The purpose of the Tar Ponds and Coke Ovens Remediation Monitoring Oversight Board (RMOB) shall be to ensure public confidence that the remediation of the Sydney Tar Ponds and Coke Ovens Sites (the Project) is being appropriately regulated by NSEL and is proceeding within approved regulatory guidelines, permits and approvals. Further, the RMOB will report on the progress and effectiveness of NSEL's regulatory management process for the Project.

2. Members
The RMOB shall consist of three duly qualified representatives possessing expertise and academic qualifications with respect to:

- the proposed remedial technologies
- contaminated sites management
- potential environmental effects
- Nova Scotia's environmental regulatory processes pursuant to the *Environment Act*

3. Responsibilities of the RMOB

A. Review of Project Permits and Approvals
The RMOB shall annually review all permits and approvals issued by NSEL.

B. Review of any Project Regulatory Issues that Arise
The RMOB shall annually review all regulatory issues and concerns that arise including enforcement actions, public complaints, NSEL response to public

complaints, and concerns raised by the Proponent regarding NSEL regulatory process.

C. Public Input

The RMOB shall take public input into account in carrying out its responsibilities. The RMOB shall provide the public with the opportunity to provide feedback on regulatory management issues. This will include a post office mailing address and e-mail address. The contact information for the RMOB shall be posted on the Proponent's project web site and the Nova Scotia Environment and Labour web site.

D. Report Annually on Project Regulatory Management

The RMOB shall prepare an annual report on NSEL's regulatory performance in regard to the project that includes:

- an analysis of the project's compliance with all permits and approvals
- an evaluation of the NSEL's monitoring and compliance activities
- a summary and evaluation of public concerns respecting regulatory management
- recommendations for improving regulatory management processes if required

E. Reporting Protocols

- The RMOB shall submit its annual report to the Nova Scotia Minister of Environment and Labour (the Minister)

- The Board's first report shall be submitted within one year of appointment. Subsequent reports shall be submitted each year at the same approximate date as the first report.

- The RMOB shall also make its reports public. The report shall be posted on the Proponent's project web site and the NSEL web site. Hard copies of the report will be made available to any interested party upon request.

4. Appointment Process

RMOB members shall be appointed for a period of no more than two years by the Minister. The Minister shall also appoint one member as chair. Appointment renewals or new appointments shall occur every one or two years until such time as the Project is complete or the Minister considers the role of the RMOB to no longer be necessary.

5. Meetings

- The RMOB shall meet at least bi-annually.
- The chair shall determine the location of RMOB meetings.
- The RMOB may at its discretion invite any party to attend RMOB meetings for the purposes of information gathering.